UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2001-0106-FEC

June 28, 2001

Mr. Lawrence C. Evans
Chief, Regulatory Branch
US Corps of Engineers, Portland District
P.O. Box 2946
Portland, OR 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for Milk Creek Habitat Enhancement, Union County, Oregon (Corps No. 2000-00990)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed Milk Creek habitat improvements near the City of Union, Union County, Oregon. The NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Snake River spring/summer chinook salmon (*Oncorhynchus tshawytscha*) or Snake River steelhead (*Oncorhynchus mykiss*), or destroy, or adversely modify their critical habitat. This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

In addition, this document also serves as consultation on Essential Fish Habitat (EFH) under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Stevens Act). An EFH analysis is required for Snake River spring/summer chinook salmon.

Questions regarding this Opinion should be directed to Pat Oman of my staff in the Oregon Habitat Office at 503.231.2313.

Sincerely,

Michael R Crouse
P.r

Donna Darm
Acting Regional Administrator

cc: Greg Apke - ODOT (w/o attachment)
Melinda Trask - ODOT
Art Martin - ODFW (w/o attachment)
Chuck Howe - ODOT (w/o attachment)
Rick Wagner - ODF (w/o attachment)
Karen Leiendecker - OWEB

Endangered Species Act - Section 7 Consultation & Magnuson - Stevens Act Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Milk Creek Habitat Enhancement
Union County, Oregon

Agency: U.S. Army Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Date Issued: June 28, 2001

Refer to: OSB2001-0106-FEC

TABLE OF CONTENTS

1. ENDANGERED SPECIES ACT

1.1 Background

On May 30, 2001, the National Marine Fisheries Service (NMFS) received a Biological Technical Report (BTR) and request from the U.S. Army Corps of Engineers (USACE) for Endangered Species Act (ESA) section 7 formal consultation for a habitat improvement and culvert replacement project on Milk Creek, located along Medical Springs Highway (Oregon Highway 203) between the towns of Union and Medical Springs at milepoint 10. The USACE has jurisdiction under section 404 of the Clean Water Act. Oregon Department of Forestry (ODF), Oregon Department of Fish and Wildlife (ODFW, and the Oregon Department of Transportation (ODOT) will administer the construction contracts. This biological opinion (Opinion) is based on the information presented in the BTR.

The USACE/ODF has determined that Snake River steelhead (*Oncorhynchus mykiss*) and Snake River spring/summer chinook (*Oncorhynchus tshawytscha)* may occur within the project area. The Snake River steelhead Evolutionarily Significant Unit (ESU) was listed as threatened on August 18, 1997 (62 FR43937) and the Snake River spring/summer chinook salmon ESU was listed as threatened on April 22, 1992 (57 FR 14653). Protective regulations for Snake River steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422), and those for Snake River spring/summer chinook were issued April 22, 1992 and as part of the 4(d) rule issued on July 10, 2000 (65 FR 42422). The proposed project is within critical habitat for Snake River spring/summer chinook, designated on December 28, 1993 (58 FR 68543), and revised slightly on October 25, 1999 (64 FR 57399) with a determination that the area above Napias Creek Falls (a tributary to the Salmon River) is not critical habitat for chinook salmon due to impassability of the falls. It is also within the critical habitat of Snake River steelhead, designated on February 16, 2000 (65 FR 7764).

The USACE/ODF is proposing to restore an approximately 980 foot long section of Milk Creek to a more natural channel. Currently, this stretch of Milk Creek flows along the highway in a drainage ditch. Restoration of the creek to a meadow environment will reduce the amount of pollutants that enter the creek from the highway. As part of the project, an undersized culvert will be replaced with one that is better for fish migration. Milk Creek is a tributary of Catherine Creek, which flows into the Grande Ronde River. Work will begin in June of 2001 and is expected to be completed in August of 2001.

The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The USACE/ ODOT determined that the proposed action was likely to adversely affect Snake River steelhead and Snake River spring/summer chinook.

This Opinion reflects the results of the consultation process. The consultation process involved a site visit on August 4, 2000, and correspondence and communications to obtain additional information and clarify the BTR.

The objective of this Opinion is to determine whether the actions to restore Milk Creek to its original channel and reconstruct a culvert are likely to jeopardize the continued existence of Snake River steelhead and Snake River spring/summer chinook, or destroy or adversely modify these species' critical habitat.

1.2 Proposed Action

The proposed project will relocate a stretch of Milk Creek from a ditch alongside the Medical Springs Highway to its historic location in a meadow. This portion of Milk Creek, which is just above the confluence of Milk Creek and Catherine Creek, is channelized to flow along the highway; the highway shoulder forms one of the creek banks. At the lower end of this stretch of the creek there is a 36-inch diameter concrete culvert that is 40 feet long. The project will restore approximately 980 feet of Milk Creek to natural conditions by creating a restored, meandering channel in the meadow, planting and seeding the creek channel with riparian vegetation, replacing the undersized culvert with one that will allow for improved fish passage, and dewatering the ditch area through which Milk Creek now flows.

The construction of the new channel was done entirely in the dry during the fall of 2000. At this location, approximately 50 feet to the south of the ditch, about 600 cubic yards of soil were removed and stockpiled in an upland area. The new channel was constructed using a collection of reference reach data upstream of the project, and the location of the reach conforms to information derived from aerial photographs taken prior to the rechannelization of the creek.

During the phase of the project that is the subject of this consultation, the existing substandard culvert will be replaced with a pre-stressed concrete box culvert. The new culvert will be 10 feet wide and 45 feet long, and will be capable of accommodating a 50 year flood as well as improving fish passage conditions for effective upstream and downstream migration of salmonids. The culvert will be countersunk 12 inches below the existing streambed, and natural river cobbles will be placed to a depth of 12 inches at the inflow and outflow aprons between the culvert wingwalls in order to provide transition between the new channel and the bottom of the culvert. The culvert wingwalls will consist of cast in place concrete with 8 foot aprons matching the same slope as the culvert. About 7 cubic yards of riprap will be placed around the outside corners of the culvert to provide scour protection. Most of this riprap will be placed above the two-year flood elevation. All of the work on the culvert will take place between July 1 and July 31, the preferred in-water work period recommended by the Oregon Department of Fish and Wildlife (ODFW). This area is isolated from the currently active flowing channel of Milk Creek.

After the completion of the culvert construction, Milk Creek will be redirected into the new channel. Block nets will be set up at the upstream and downstream ends of the new channel to prevent any fish that may be present from entering the reconstructed channel. Within the area to be dewatered, fish will be captured and relocated by seining and possibly electroshocking. If electroshocking is used, it will be done using methods more conservative than those proposed by NMFS guidelines for electroshocking (June 2000). Few fish are expected to be present during this operation, which will also take place during the ODFW in-water work period of July 1 to

July 31. Any fish removed from the ditch will be placed in cold, oxygenated water and transported quickly to be relocated to a section of Milk Creek upstream of the project area. After the removal of any fish in the vicinity, the opening to the new channel will be slowly and carefully breached to minimize the production of sediment. After the sediments in the new channel have settled and turbidity is no longer present, the block nets will be removed.

Once the old culvert is completely isolated from the active flowing stream, it will be abandoned in place. The old Milk Creek channel will be filled with soil that had been removed from the meadow and stockpiled. Five rock weirs will be constructed within the old channel to redirect sheet flow from the highway. This will provide for biofiltration of highway runoff pollutants and prevent the erosion of the former roadside channel. Approximately 510 cubic yards of fill will be placed in order to complete this phase of the project. This work may take up until October of 2001.

Temporary erosion control measures will be installed for all stages prior to beginning construction of the culvert. This will include the use of silt fences, secured with sand bags and/or erosion control fabric, to prevent erosion and loss of construction debris into the stream in the area where the new culvert will be built. Erosion control measures will remain in place until all work is completed and the site has been revegetated or otherwise stabilized.

After completion of the construction phases, cuttings and/or plugs from native plant nurseries will be placed at 6 foot intervals along both banks of the new stream channel. These may include wild rose, snowberry, Mackenzie willow, Bebb willow, thinleaf alder, and red-osier dogwood. In the spring, cuttings from black cottonwoods, obtained from trees in the Catherine Creek watershed, will be planted experimentally to see if this area can support this type of vegetation. They will be planted in groups of 3 or 4 at ten locations along the creek. Some ponderosa pine seedlings may be planted as well.

The project area will be monitored annually for at least three years to ensure that revegetation with native species is providing functional riparian habitat. Photo-documentation at five sites will be one of the tools used to evaluate the success of the restoration of Milk Creek habitat. Similar projects in the basin indicate that a natural rapid recovery of native species, especially sedges, is likely to occur. If this does not prove to be the case at this section of Milk Creek then additional plantings will be done. During the period of plant establishment, cattle will be excluded from the area by means of electrified fences, located 100 feet from either side of the stream channel.

In 2004, the Eastern Oregon Agricultural Experiment Center (EOAEC) at Hall Ranch may allow cattle grazing to be resumed at the site, but only if plant re-establishment criteria have been met. The indications of project success include a greater than 70% total vegetation cover and greater than 60% streambank stability by the third year of plant growth.

1.3 Biological Information and Critical Habitat

The Snake River steelhead Evolutionarily Significant Unit (ESU) was listed as threatened on August 18, 1997 (62 FR43937) and Snake River spring/summer chinook salmon ESU was listed as threatened on April 22, 1992 (57 FR 14653). Protective regulations for Snake River steelhead and Snake River spring/summer chinook were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423). Biological information for Snake River steelhead is found in Busby et al. (1996) and that for Snake River spring/summer chinook in Mathews and Waples (1991) and is summarized in Myers et al. (1998). Recent counts of upstream migration of both species, done at Lower Granite Dam, show at least some short-term improvement in the levels of adults returning to spawn. The Grande Ronde River, to which Milk Creek is a tributary, is one of five principal subbasins in the Snake River drainage that contributes to salmon and steelhead production.

Critical habitat for Snake River spring/summer chinook was designated on December 28, 1993 (58 FR 68543), and critical habitat for Snake River steelhead was designated on February 16, 2000 (65 FR 7764). Critical habitat for Snake River salmon and steelhead encompasses the major Columbia River tributaries known to support this ESU, including the Salmon, Grande Ronde, Imnaha, Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing (more than 100 years duration) naturally-impassable barriers, and therefore, includes the Milk Creek project area. The riparian zone adjacent to these waterways is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: 1) Defining the biological requirements and current status of the listed species; and 2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: 1) Collective effects of the proposed or continuing action; 2) the environmental baseline; and 3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of the Snake River spring/summer salmon and steelhead under the existing environmental baseline. NMFS' Essential Fish Habitat (EFH) analysis considers the effects of proposed actions on EFH and associated species and their life history stages, including cumulative effects and the magnitude of such effects.

1.4.1 Biological Requirements

The first step in the methods the NMFS uses for applying the ESA section 7(a)(2) to listed salmon and steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list Snake River salmon and steelhead for ESA protection, and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for Snake River spring/summer chinook salmon and Snake River steelhead to survive and recover to naturally reproducing population levels at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

The current status of Snake River spring/summer chinook salmon ESU has improved somewhat since being listed as threatened in 1992. In 1994 the species was proposed for listing as endangered due to very low numbers of adults observed at Lower Granite Dam on the lower Snake River. However, an improvement in the adult return levels seen in 1997 prompted the withdrawal of the proposed rule in 1998. Recent returns show continuing improvements in adult returns, at least for some portions of the ESU. The counts at Lower Granite for spring/summer chinook were 14,320 in 1998, 6,556 in 1999, and 37,755 in 2000. Lower Granite Dam is

located at river mile 107.5 on the mainstem Snake River, about 70 miles below (downstream of) the confluence of the Grande Ronde River with the Snake.

Snake River spring/summer chinook use relatively small, higher elevation streams for spawning and early juvenile rearing. They migrate swiftly to sea as yearling smolts. The returning adult spring-run chinook reach the Snake River in April, whereas returning summer-run adult chinook reach the Snake River in July. Peak spawning for both spring and summer chinook is in the fall (mid August through September). The Grande Ronde River Basin contains spring and summer runs. Populations from this ESU migrate to the ocean as yearlings, mature at ages 4 and 5, and are rarely taken in ocean fisheries. Low numbers of rearing juvenile chinook may be present in the vicinity of the project, although their presence will be limited during periods of low flow and high summer temperatures.

The Grande Ronde River spring/summer chinook stocks are at moderate risk of extinction, primarily due to habitat degradation and disruption of migration corridors. The abundance of naturally-spawning chinook in this ESU has drastically decreased from historical population sizes of more than 1.5 million adults. The average population size between 1992 and 1996 was 3,280 naturally-produced spawners (based on counts at Lower Granite Dam on the Snake River). As noted above, these counts improved between 1998 and 2000. The most significant barriers to chinook presence in the Grande Ronde System are the many dams along the Columbia and Snake rivers that greatly inhibit migration. Other significant factors involved with habitat degradation include high water temperatures, lack of pools, low flows, poor overwintering conditions, and high sediment loads.

Snake River steelhead, listed in 1997, have shown some recent improvement, although the data for wild fish are insufficient to draw any conclusions about trends. During 1990 - 1995 the percentage of wild origin steelhead migrating above Lower Granite dam averaged 14% of the total run; the majority of steelhead in the Snake River system are of hatchery origin. Data for the past 10 years indicate that the hatchery origin steelhead continue to outnumber the wild fish.

A recent status report, the draft Conservation Assessment of Steelhead Populations in Oregon (Chilcote, 2001) concluded that the Snake River steelhead are in no danger of extinction:

> All of the populations examined within the Snake ESU appear to be at abundance levels that are greater than 50% of maximum seeding. Both the Joseph and Imnaha populations have survived a period of extremely low spawner densities in the late 1970s. They are now substantially above these levels and seem to be in the beginning stages of an upward trend. The pattern for the other two Grande Ronde populations is more erratic. The upper Grande Ronde spawner density in the last two years has been very low. However, the productivity for these populations has remained greater than for many other populations during the recent low portion of the presumed survival cycle.

Adult steelhead enter freshwater from May to August, and begin to move into the Grande Ronde system in February. Spawning occurs from March through May. After spawning, adult

steelhead individuals of this population die, so they are not present in the system after around June. Juveniles are present all year, but are likely to move to cool water refugia during the warm summer months. Hatchery fish are widespread in the Snake River steelhead ESU.

In listing the Snake River steelhead as threatened, NMFS concluded that this ESU is not presently in danger of extinction, but likely to become extinct in the foreseeable future. This is primarily due to the declining abundance of natural runs. As with chinook salmon, the most significant barriers to steelhead presence in the Grande Ronde System are the many dams along the Columbia and Snake rivers that greatly inhibit migration. Possible genetic introgression from hatchery stocks is another threat. NMFS is also concerned about the degradation of freshwater habitats within the region, especially the impact of grazing, irrigation diversions, and hydroelectric dams on steelhead. However, the evaluation of threats to Snake River steelhead is clouded by uncertainty around population sizes, degree of interaction between hatchery and natural stock, and relationships between anadromous and resident forms of steelhead.

1.4.2 Environmental Baseline

The current range-wide status of the identified ESUs may be found in Busby et al. (1996) and Myers et al. (1998). The identified action will occur within the range of Snake River steelhead and Snake River spring/summer chinook. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect affects may occur throughout the watershed, where actions described in this Opinion lead to additional activities, or affect ecological functions, contributing to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as both the new and the old sections of the streambed and riparian habitat of Milk Creek, 50 feet upstream from the point at which the creek will be diverted from the old channel to the new, and 100 feet downstream of the new culvert.

The project is within the floodplains of Milk Creek and Catherine Creek, located about 10 miles southeast of the town of Union. Catherine Creek is a tributary of the Grande Ronde River. The watershed covers about 328 square miles, most of which is private agricultural lands; the upper reaches are located within the Wallowa-Whitman National Forest. Catherine Creek flows out of the west side of the Wallowa Mountains, though the city of Union, and then into the Grande Ronde River. About 140 miles down from this confluence, the Grande Ronde River enters the Snake River near the northeastern Oregon/Idaho border. The Snake River flows into the Columbia River.

The eastern portion of the Snake River Basin flows out of the granitic geological unit known as the Idaho Batholith, while the western Snake River Basin drains sedimentary and volcanic soils of the Blue Mountains complex. The project is within the Blue Mountains Province,

characterized by coniferous forests and grass/steppe vegetation. In the immediate vicinity of the project, there is a mosaic of tree, shrub, and meadow and aquatic communities. It is located within a transition zone between the lower elevation Ponderosa Pine Zone and the slightly higher elevation Douglas Fir Zone. According to Kauffman et al. (1985), the three principal plant community types in the project area are Kentucky bluegrass-mixed forb (mapped as wet meadow), thinleaf alder (mapped as alder/hawthorne scrub), and Douglas' hawthorne (mapped as hawthorne/willow scrub).

Catherine Creek is a perennial, high gradient stream, with an annual average flow of 119 cubic feet per second (cfs). Peak annual flows occur in late April, May, and June, with a spring runoff rate that is around 500 cfs. Milk Creek is a low gradient stream that is spring-fed. It flows for about five miles through a relatively broad, multiple-terraced valley floor. An Oregon Aquatic Inventory report done in September 1992, the results of a survey from the confluence of Milk Creek/Catherine Creek to about 1.2 miles upstream, found little cattle damage to the creek despite the lack of riparian fencing (ODFW 1992). The same inventory describes the substrate as being composed of 66% fines; 43% of the units sampled had actively eroding banks. No large woody debris was observed. At about 2,000 and 2,700 feet upstream from the confluence are springs feeding Milk Creek. Fish survey data gathered in August, 1991 found juvenile chinook (2-3 inches long) and "rainbow trout" that ranged in size from 3-6 inches long. Results for a stretch of Catherine Creek inventoried at the same time were similar, except for the presence of larger chinook salmon (12-16 inches long) and bull trout (9-12 inches long). This indicates that there is some successful spawning in the area of the project, and chinook salmon spawning beds have been identified downstream, in Catherine Creek.

Land use in the project area is primarily agricultural, with cattle grazing the predominant use since the early part of the 20th Century. Northwest of the project area about one mile is Catherine Creek State Park, and the Wallowa Whitman National Forest boundary is approximately two miles to the southeast. The area is managed as part of Hall Ranch, a research facility owned by Oregon State University's EOAEC.

This reach of Catherine Creek is currently listed by the Oregon Department of Environmental Quality (DEQ) under the Clean Water Act's Section 303(d), *List of Water Quality Limited Water Bodies*, for elevated summer temperatures (ODEQ, 1999). Milk Creek is not on the 303(d) list.

Based on the best available information on the current status of Snake River spring/summer chinook and steelhead range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area (as described in the BA), NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. Numbers of both chinook and steelhead are substantially below historic numbers. Recovery trends show no clear pattern due to lack of long-term data. Degraded freshwater habitat conditions, which include the effects of agricultural and residential use, have contributed to the decline.

The NMFS Matrix of Pathways and Indicators (NMFS 1996) was used to assess the current condition of various steelhead and salmon habitat parameters. Use of the Matrix identified the following habitat indicators as either at risk or not properly functioning within the action area: Water temperatures, substrate, pool frequency and quality, off-channel habitat, refugia, streambank condition, floodplain connectivity, peak/base flows, and disturbance history and regime. Actions that do not maintain or restore properly functioning aquatic habitat conditions have the potential to jeopardize the continued existence of Snake River chinook salmon and steelhead.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document, *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of proposed actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area.

The proposed action has the potential to cause the following impacts to threatened Snake River chinook salmon and Snake River steelhead or designated critical habitat:

1. In-water work may cause direct adverse impacts to any juvenile chinook salmon and steelhead that may be present near the work site.

The construction activity has the potential to directly harm juvenile fish due to handling or otherwise disturbing rearing juveniles. Short-term increases in sediment and turbidity could reduce light penetration and inhibit primary production, abrade and clog fish gills, prevent feeding by sight feeders, stop migration, and cause any fish in the area to avoid the disturbed reaches of the creek. The effects of these activities on Snake River chinook salmon and steelhead will be minimized by limiting any in-water construction work to the ODFW-approved in-water work period, and by temporarily preventing the movement of fish through the newly constructed channel by means of block nets.

2. Riparian function and stream channel morphology will be altered, causing short-term adverse impacts to salmonids until the restored riparian habitat is fully functioning.

Increased sedimentation during restoration of flow to the newly constructed channel may result in minor siltation of downstream spawning gravels. There will be changes in channel conditions and dynamics following the reconstruction of a naturally meandering creek; these are expected to improve watershed conditions. The long-term results of the project will be beneficial as Milk Creek will no longer flow through a drainage ditch; stormwater runoff from the highway will be less polluting since it will no longer go directly into the active flowing channel, but will instead

be biofiltered through vegetated areas. In the interim, there may be elevated summer temperatures in this section of Milk Creek pending regrowth of mature riparian vegetation.

The effects of these activities on Snake River chinook salmon and steelhead and aquatic habitat factors will be limited by implementing construction methods and approaches that are included in project design and intended to avoid or minimize impacts. As described in the biological assessment, these include:

1. All in-water work will be conducted during the ODFW-approved in-water work period of July 1 to July 31. This will avoid impacts to juvenile chinook salmon and steelhead.

2. Alteration and disturbance of stream banks and existing riparian vegetation will be minimized to the extent possible prior to redirecting the flow of Milk Creek. When working within the two-year floodplain, riparian vegetation and normal water flows will be maintained.

3. The amount of riprap used in the construction of the box culvert will be minimized, and only clean, non-erodible, upland angular rock of sufficient size to ensure long-term armoring will be used. There will be no constriction of the channel bottom width as a result of riprap placement within the two year floodplain. The cobbles to be placed in the inflow and outflow aprons will be natural river rock, rather than crushed quarry material.

4. Native vegetation will be maintained wherever possible. Shrubs and trees in the vicinity of culvert construction will be removed by clipping at ground level, and not grubbed out of the soil. Invasive exotic species will not be protected.

5. Riparian vegetation removed during culvert construction will be replaced at a rate of at least 1.5:1. All disturbed riparian areas in the project vicinity will be replanted with native riparian shrubs and locally present herbaceous species.

6. The culvert design has been chosen expressly to minimize and avoid impacts to aquatic habitat and organisms, and to improve fish passage for salmonids. The duration of in-water work will be limited, and is estimated to take place over three non-consecutive days.

For the proposed action, the NMFS expects that the effects of the proposed project will tend to maintain each of the habitat elements over the long term, greater than two years. However, in the short term, a temporary increase in sediment entrainment and turbidity, and disturbance of riparian and instream habitat is expected. Fish may be killed or temporarily displaced during the in-water work. Restoration of Milk Creek to a naturally meandering channel that approximates its historic location in a meadow is expected to provide long-term benefits to fish and other aquatic species. The potential net effect from the proposed action, including proposed riparian

plantings, is expected to be the maintenance and restoration of functional salmon and steelhead habitat conditions.

1.5.2 Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for Snake River chinook salmon and steelhead consists of all waterways below naturally impassable barriers, which includes the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, input of large woody debris or organic matter, and others.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project site and watershed scales. The results of this evaluation, based on the "matrix of pathways and indicators" (MPI) described in *"Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale"* (NMFS 1996), are detailed above. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species and assesses the constituent elements of critical habitat. An assessment of the essential features of Snake River chinook salmon and steelhead critical habitat is obtained by using the MPI process to evaluate whether aquatic habitat is properly functioning.

The proposed actions will affect critical habitat and may result in the take of minimal numbers of listed Snake River steelhead and chinook salmon. In the short term, a temporary increase of sediment and turbidity and disturbance of riparian and instream habitat is expected. In the long term, the temporary loss of habitat will be offset by the restoration of riparian function and the reduction of toxic pollutants coming off of the highway during precipitation. Consequently, NMFS expects that the net effect of this action will improve the long-term value of the habitat for survival of Snake River chinook salmon and steelhead.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area is defined as the streambed and riparian habitat of Milk Creek throughout the action area. The action area extends 50 feet upstream of the project site, and 100 feet downstream. The project actions consist of replacing a culvert and restoring a historic creek bed, and are detailed in the project description section above. NMFS is not aware of any significant change in non-Federal activities that are reasonably certain to occur within the action area. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Future USACE-permitted habitat restoration projects are planned in the Grande Ronde watershed. Each of these projects will be

reviewed through separate section 7 consultations and are not considered cumulative effects of this project.

1.6 Conclusion

NMFS has determined based on the available information, that the proposed action is expected to result in the improvement of stream habitat conditions within the action area over the long term. As such, the proposed action covered in this Opinion is not likely to jeopardize the continued existence of Snake River salmon and steelhead. NMFS used the best available scientific and commercial data to apply its jeopardy analysis, when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment impacts, in-water construction, and habitat loss. These effects will be mitigated through the implementation of proposed plantings, improved culvert design, and restoration of the natural channel of Milk Creek. Because properly functioning aquatic habitat conditions will be maintained and improved over the long term, there is no adverse modification or destruction of critical habitat. Direct mortality of juvenile steelhead may occur during the in-water work period of project activities.

1.7 Reinitiation of Consultation

Consultation must be reinitiated if: 1) The amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; 2) new information reveals effects of the action may affect listed species in a way not previously considered; 3) the action is modified in a way that causes an effect on listed species that was not previously considered; or, 4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). To reinitiate consultation, USACE must contact the Habitat Conservation Division (Oregon Habitat Office) of NMFS.

2. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the

agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of Snake River spring/summer chinook salmon and steelhead because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during in-water work (lethal and non-lethal). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on chinook salmon and steelhead habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the two species. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the biological assessment, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to within the area of project disturbance, extending 50 feet upstream and 100 feet downstream of the project area. This take statement does not authorize any take that may result from cattle grazing, which would be a separate action and which would be subject to a separate take authorization.

2.2 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. To minimize the amount and extent of incidental take from in-water construction activities at the Milk Creek bridge, measures shall be taken to limit the duration and extent of in-water work, and to time such work when the impacts to Snake River chinook salmon and steelhead are minimized.

2. To minimize the amount and extent of incidental take from construction activities in or near the creeks, effective erosion and pollution control measures shall be developed and implemented throughout the area of disturbance. The measures shall minimize the movement of soils and sediment both into and within the river, and will stabilize bare soil over both the short term and long term.

3. To minimize the amount and extent of take from loss of instream habitat and to minimize impacts to critical habitat, measures shall be taken to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream function.

4. To ensure effectiveness of implementation of the reasonable and prudent measures, all erosion control measures, fish passage improvements, and plantings for site restoration shall be monitored and evaluated both during and following construction, and meet criteria as described below in the terms and conditions.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, USACE/ODF must comply with the following terms and conditions, which will implement the reasonable and prudent measures described above. These terms and conditions should be incorporated into construction contracts and subcontracts to ensure that the work is carried out in the manner prescribed. Implementation of the terms and conditions within this Opinion will further reduce the risk of impacts to listed fish and habitat in Milk Creek. These terms and conditions are non-discretionary.

1. In-water work: During the period of in-water work, the Project Team/ODOT Regional Environmental Coordinator shall monitor construction activities periodically to ensure that the following provisions are met:

    a. All work within the active channel of Milk Creek will be completed within the ODFW-approved in-water work period (July 1 to July 31). Any adjustments to the in-water work period will first be approved by, and coordinated with, NMFS and ODFW.

    b. Alteration or disturbance of stream banks and existing riparian vegetation along the existing channel (the ditch) will be minimized until such time as it is abandoned.

    c. The amount of riprap used will be minimized. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Placement will be from above the bank line and not "end-dumped."

    d. The diversion or withdrawal of any water from natural streams for construction or for irrigating riparian plantings will comply with all state and federal laws, particularly those that require a temporary water right and screening of intakes. The USACE/ODF shall be responsible for informing all contractors and project participants of their obligations to comply with existing, applicable statutes.

e. The culvert design will ensure passage of fish as required in ORS 498.268 and ORS 509.605 (Oregon's fish passage administrative rules) and as recommended in the Oregon Road/Stream Crossing Guide (Robison, 1999).

2. Erosion and Pollution Control

A Pollution Control Plan (PCP) and an Erosion Control Plan (ECP) will be prepared by the Project Team or the contractor. The PCP/ECP will outline how and to what specifications various erosion and pollution control devices will be used to meet water quality standards, and will provide a specific inspection protocol and time response. Erosion control measures shall be sufficient to ensure compliance with applicable water quality standards and this Opinion. The PCP/ECP shall be maintained on site and shall be available for review upon request. The following conditions must be met.

a. Effective erosion control measures shall be in-place at all times during construction. Construction within the two-year floodplain will not begin until all temporary erosion controls (e.g., straw bales, silt fences, or other methods) are in place within the riparian area. Erosion control structures will be maintained throughout the life of the project.

   i. Erosion control blankets or heavy duty matting (e.g., jute) may be used on steep or unstable slopes in conjunction with seeding, or prior to seeding.

   ii. Biobags, weed-free straw bales and loose straw may be used for temporary erosion control. Temporary erosion and sediment controls will be used on all exposed slopes during any hiatus in work on exposed slopes.

b. All exposed areas will be replanted with native shrubs and locally present herbaceous species. Erosion control planting, and placement of erosion control blankets and mats (if applicable) will be completed on all areas of bare soil within seven days of exposure within 150 feet of waterways, wetlands or other sensitive areas, and in all areas during the wet season (after October 1). All other areas will be stabilized within 14 days of exposure. Efforts will be made to cover exposed areas as soon as possible after exposure.

c. All erosion control devices will be inspected throughout the construction period to ensure that they are working adequately. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, and monthly on inactive sites. Work crews will be mobilized to make immediate repairs to the erosion controls, or to install erosion controls during working and off-hours. Should a control measure not function effectively, the control measure will be immediately repaired or replaced. Additional erosion controls will be installed as necessary.

d. Where feasible, sediment-laden water created by construction activity shall be filtered before it leaves the project area or enters an aquatic resource area.

e. All equipment that is used for instream work will be cleaned prior to entering the two-year floodplain. External oil and grease will be removed, along with dirt and mud. Untreated wash and rinse water will not be discharged into streams and rivers without adequate treatment.

f. Material removed during excavation shall only be placed in upland locations where it cannot enter sensitive aquatic habitat. Conservation of topsoil (removal, storage and reuse) will be employed.

g. Measures will be taken to prevent construction debris from falling into any aquatic habitat. Any material that falls into a stream during construction operations will be removed in a manner that has a minimum impact on the streambed and water quality.

h. Project actions will follow all provisions of the Clean Water Act (40 CFR Subchapter D) and DEQ's provisions for maintenance of water quality standards. Toxic substances shall not be introduced above natural background levels in waters of the State in amounts which may be harmful to aquatic life. Any turbidity caused by this project shall not exceed 10% above background as measured 30 feet downstream of the project, per the NPDES permit.

i. ODF will develop and implement an adequate, site-specific Spill Prevention and Countermeasure or Pollution Control Plan (PCP), and is responsible for containment and removal of any toxicants released.

j. Areas for fuel storage, refueling and servicing of construction equipment and vehicles will be located above the 10-year floodplain of any waterbody. Overnight storage of non-wheeled vehicles is allowed within the two year floodplain during the in-water work window; however, to minimize the risk of fuel reaching the water, refueling of these vehicles should not occur after 1 pm (so the vehicles do not have full tanks overnight).

k. No surface application of nitrogen fertilizer will be used within 50 feet of any aquatic resource.

3. Riparian Habitat Protection Measures include the following:

a. Boundaries of the vegetation clearing limits for the culvert work will be flagged prior to the start of construction. Ground will not be disturbed beyond the flagged boundary.

b. Alteration of native vegetation will be minimized. Where possible, native vegetation will be clipped by hand so that roots are left intact. This will reduce erosion while still allowing room to work. No protection will be made of invasive exotic species (e.g. Himalayan blackberry), although no chemical treatment of invasive species will be used.

c. Riparian understory and overstory vegetation will be replaced following the provisions described in the biological assessment. Woody vegetation will have a replacement rate of at least l.5:1. Replacement plantings will occur within the project vicinity. Materials will be salvaged from the construction zone or obtained using stock that originates in the Snake River basin, and will include native willow, gooseberry, and black hawthorne.

d. EOARC/Hall Ranch managers will exclude livestock from the newly created stream channel area by means of electrified fence for at least three years. At that time, an assessment of the riparian/stream function will be completed, and the decision to allow grazing will be made on the basis of criteria described in section 1.2 (greater than 70% total vegetation cover and greater than 60% streambank stability).

4. Monitoring and reporting requirements include the following:

a. Erosion control measures as described above shall be monitored at all times during construction to ensure that sedimentation/turbidity is kept to a minimum.

b. All significant riparian replant areas will be monitored to insure the following:

i. Finished grade slopes and elevations will perform the appropriate role for which they were designed.

ii. Plantings are performing correctly and have an adequate success rate (success rate depends on the planting density, but the goal is to have a functional riparian vegetation community).

c. Failed plantings and structures will be replaced, if replacement would potentially succeed. If not, plantings at other appropriate locations will be done.

d. A plant establishment period (three year minimum) will be required for all riparian mitigation plantings.

f. Monitoring/reporting of long-term project effects will include the following:

i. Photo points (5-10) will be established and riparian vegetation/streambanks photographed a minimum of four times annually,

at regular three month intervals, for at least three years. This photo-documentation will be provided to NMFS along with a copy of the narrative project report that is submitted to the Oregon Watershed Enhancement Board. Should cattle be reintroduced to the project area, the photodocumentation will continue for at least three more years after cattle grazing resumes, with photos taken from the same photo points during the spring and in September of each year, and a summary report of the effects of livestock use on stream and riparian habitat function provided annually to NMFS.

ii. Reports will include project identification (name and USACE number), the ODF contact person, the starting and ending dates of the project.

iii. Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.

iv. Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

v. Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

g. All monitoring reports shall be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch, Habitat Conservation Division
Attn: OSB2001-0106
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the Essential Fish Habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and ``spawning, breeding, feeding, or growth to maturity'' covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*)(PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-

impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed above in section 1.2. The action area includes both the new and the old sections of the streambed and riparian habitat of Milk Creek, 50 feet upstream from the point at which the creek will be diverted from the old channel to the new, and 100 feet downstream of the new culvert. This area has been designated as EFH for various life stages of chinook salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5.1, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. These impacts include short-term increases in sediment and turbidity, and reductions in riparian function. Over the Long term, the project is expected to maintain or restore proper functioning habitat conditions.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for Pacific salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the USACE/ODF and all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NMFS after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NMFS, the agency must explain its reasons for not following the recommendation.

3.9 Consultation Renewal

The USACE/ODF must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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